

## ***ANNUAL GENERAL MEETING***

**THE ANNUAL GENERAL MEETING OF THE  
WHANGAREI MODEL ENGINEERING CLUB  
WILL BE HELD ON**

**THURSDAY, JUNE 27, 2013**

**AT 6 PM IN THE CLUBROOMS**

**THE A.G.M. WILL BE FOLLOWED BY THE NORMAL  
MONTHLY MEETING**

### **CLUB HAPPENINGS**

Next General Meeting: Thursday, June 27, 2013.

Clubrooms, Western Hills, 6 pm [Clubrooms open at 5.30 for coffee]

3rd Sunday Running — June 16, 2013.

Mid-week Workdays: Mostly Every Wednesday.

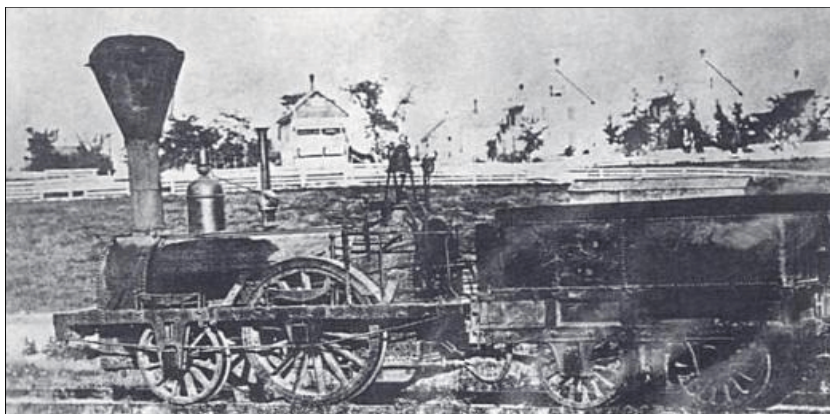
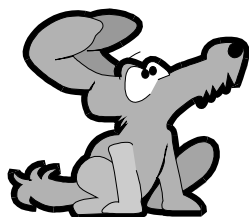
**NONE ADVISED**

**THESE WORK IN WITH  
MUSEUM "LIVE" DAYS AND  
OTHER EVENTS**

## QUIZ — What is it?



For answer see Page 4.



### Lloyd's Tiki-Tour of the U.S.A.

Last month member Lloyd Cross departed these shores for a tour of the U.S.A. which was, I believe, to see family and do some serious train spotting.

During this little escapade he sent some photos back showing what he is (or has) been up to. I gather from some comments he made that he was totally "gob-smacked" at the size of some of the freight trains he saw.

The photo on the left shows Lloyd as happy as a sand boy in the cab of a Southern Pacific cab-forward loco at the Sacramento State Railroad Museum.

Hey, Lloyd, the pressure gauge shows you've run out of puff!!

Photo at bottom left shows him practising how to drive a tram at the museum in San Francisco — he must be hoping to drive the Lisbon trams at Heritage Park when they come on line.



## LIST OF CLUB OFFICERS

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# President's Report — 2013

I would like, at this stage, to thank all the committee and all the members that have helped at the club for all their work over the last 12 months, in helping to keep the club running.

We have had a good year in regards running days, when the weather was good the customers came.

Our annual Open Weekend in January was well attended with visiting members and locos from all over the North Island. This brought the crowd out.

The track gang has kept the track up to a good standard. In fact the track has never been better than it is now. Weeds have been kept to a manageable level with the use of the spray wagon and knapsack sprayers.

The main project for the year has been the building of six new trolleys for the club. These are now completed and all run very well. They look great in the blue colour. There is some advertising to come which will cover some of the blue. There are also four more trolleys to come on line soon. These are being completed by two members and these will help on busy days. The club trolleys were manufactured mainly on the Wednesday work days. Many of the components were manufactured in the home workshops of the members involved. A big Thank You must go to all the members involved in this project. Well done.

All the trolleys the club operates have now had an identifying number added. We are working through giving them WoF's, some will have a Restricted WoF where they are work wagons or have no brakes. In the process of doing this work we are identifying all other items that need inspections, this will help in keeping records of all work and inspections.

We had a new main door fitted to the track side of the basement. It went in with no problems and operates well. The old door, which did not cost the club anything, was sold for scrap and we received about \$70 for it.

It was good to see that all the discussion in regards to life members has been completed and the club has now issued three life membership certificates. I must thank you all for this work.

It has been a sad year for the club with the death of both Wendy 10 months ago and Wally Webb last month. They both were very active within the club until their ill health took hold. They will both be sadly missed.

We have had on-going problems with the museum in regards to us selling sausages and parking of our cars. Will this ever end?

I will be away for some time this year and early next year, therefore I will not be standing as president for the next year. In fact I will not be at the AGM so please accept my apologies for the meeting and the next few.



Roger Reynolds, President.

**ROGER IS TAKING LEAVE OF  
ABSENCE TO TAKE AN EXTENDED  
HOLIDAY OVERSEAS**

**DON'T VISIT TOO MANY MODEL TRACKS !!**

## **Other Club's Events:**

**Manukau Live Steamers:** Open Weekend. June 1-2-3.

**E.B.O.P. Model Engineers Society:** Open Weekend. July 20-21

## **BRAIN TEASER ANSWERS:**

- (1) People who live in glass houses should not throw stones.
- (2) A rolling stone gathers no moss.
- (3) Curiosity killed the cat.





# Award-winning device harvests energy from railway track vibrations

Much of the abundant mechanical energy around us is irregular and oscillatory and can be somewhat difficult to efficiently tap into. Typical energy harvesting systems tend to be built for low power applications in the milliwatts range but researchers from New York's Stony Brook University have developed a new patent-pending electromagnetic energy harvester capable of harnessing the vibrations of a locomotive thundering down a stretch of track to power signal lights, structural monitoring systems or even track points.

As a train rolls down the track, the load it exerts on the track causes vertical deflection. This displacement could engage a regenerative device like an electromagnetic harvester and generate enough power to operate local railway applications, which is especially useful in remote areas where electrification is not cost effective. Harvesting such energy is much more efficient with regular, unidirectional motion, but track vibrations caused by a moving train are pulse-like, bi-directional and somewhat erratic.

Professor Lei Zuo and graduate students from the University's Department of Mechanical Engineering claim to have designed a new harvester capable of converting irregular, oscillatory rail track vibrations into regulated unidirectional rotational motion, similar to the way that an electric voltage rectifier converts AC voltage into DC.



"The U.S. has the longest rail tracks in the world, approximately 140,700 miles; that are often in remote areas," said Professor Zuo. "It is very important but also very costly to power the track-side electrical infrastructure, such as the signal lights, crossing gates, track switches and monitoring sensors. Our invention (the Mechanical Motion Rectifier based Railroad Energy Harvester) can harness 200 watts of electric energy from train-induced track deflections to power the track-side electrical devices. By using two one-way clutches, the innovative mechanical motion rectifier converts the irregular up-and-down vibration motion into unidirectional rotation of the generator, thus breaking the fundamental challenge of vibration energy harvesting and offering significant advantages of high efficiency and high reliability."

Impact forces from repeated loading/unloading are also said to be reduced thanks to the incorporation of a flywheel to stabilize the generator. According to Professor Zuo, the technology enables a generator to rotate in one direction with relative steady speed in a more efficient speed region, and changes the negative influence of motion inertia into a positive, thereby reducing mechanical stress and increasing system reliability. Bench testing of system prototypes has resulted in mechanical efficiency of between 55 and 72 percent.

"Such a design not only avoids the challenges of friction and impact induced by oscillation motion, but also enables us to make full use of the pulse-like features of track vibration to harvest more energy," he said.

Professor Zuo estimates that the implementation of such a device could save more than US\$10 million in trackside power supply costs for the New York State area alone, together with a reduction of 3000 tons of carbon dioxide every year.

"If 10,000 units of 200 watt harvesters are deployed in New York State with 20 percent duty cycle, the energy benefits will be 400,000 watts, or  $3.5 \times 10.6$  kWh per year," he explained. "At an average retail price \$0.14 per kWh of electricity for the transportation sector, this annual electricity saving will be half a million US dollars in New York State alone."

The team was awarded the "Best Application of Energy Harvesting" at the 3rd Energy Harvesting and Wireless Sensor Networks USA awards held in Washington on November 7-8, 2012 and has already licensed the technology to Electric Truck/Harvest NRG for commercialisation. ■

## BRAIN TEASERS (read the descriptions provided below and try to guess which proverb they represent.)

- (1) A body of persons abiding in a domicile of silica combined with metallic oxides should not carelessly project small geological specimens.
- (2) A consolidated mass which forms the earth's crust, and which progresses by turning over upon its surface without slipping, does not successfully gather together a cryptogamous plant.
- (3) A chronic disposition to inquiry deprived the domestic feline carnivorous quadruped of its vital quality.

ANSWERS ON PAGE 3



# ANSWER TO QUIZ ON PAGE 2:

Photograph is believed to be that of “Meteor”, built in 1832 for the Boston and Worcester Railroad. The “Meteor” a 2-2-0 Planet-class locomotive was built by Robert Stephenson and Company. In 1835 the locomotive was sold to the Bangor and Piscataquis Canal and Railroad company and was scrapped in 1867. The photograph was taken about the time of its retirement in 1867. The engine design was found to be unsuitable for the roughly laid American tracks, as its wheelbase and lack of floating leading wheels caused the engine to rock and easily derail.

**BUT READ ON . . . THERE’S MORE!!**

## DEEPSEA TRAIN GRAVEYARD

Archaeologists have discovered a train graveyard off the coast of New Jersey, where two rare locomotives from the 1850s lay preserved under 90 feet of water.

It remains a mystery how the two steam engines were sunk. There is no historical record of them ever being built and no record of them being lost.

Explorers believe that the engines were lost in a storm five miles off the coast of Long Branch, New Jersey, as they were being transported from Boston to a Mid-Atlantic coastal port.

They either fell off the barge, experts believe, or were deliberately pushed off to prevent the ship from going down in rough seas. Though they are encrusted in 160 years worth of rust — they remain remarkably well preserved.

“It looked like they were steaming across the bottom in a race,” Dan Lieb told the [Philadelphia Inquirer](#), recounting the first time he spotted them. ‘You could imagine them on tracks at a station with steam coming out of the valves, and people and luggage on the platform.’

Lieb, a member of the Philadelphia Chapter of the Explorers Club, is now working with the New Jersey Museum of Transportation to determine what to do with the steam engines. One plan under consideration involves pulling both locomotives to the surface to restore them.

The locomotives are rare Planet Class 2-2-2 T models, which were only made for a short time because they became obsolete nearly as soon as they were produced. They were fully-loaded, self contained 15-ton locomotives at a time when steam engines were being produced at 35 tons.

They were packed with power for their size, Mr Lieb says, but were too small for their time.

Paul Hepler, the first to discover the locomotives, found them by chance in 1985. He was mapping the ocean bottom with a magnometer, when the device picked up two huge metal objects below.

“I didn’t know what it was at first because the water was dirty and the visibility was so bad back then,” he told the newspaper. “Once I got a better look at it in later dives, I could see they were locomotives.” ■



**Two Indian junkies accidentally snorted curry powder instead of cocaine, both are in hospital ... one's in a korma the other's got a dodgy tikka!**

Newsletters Received . . .

Title	From	Dated
Expansion Link	E.B.O.P. Society of Model Engineers (Inc)	June 2013
Model Torque	Hamilton Model Engineers (Inc)	May 2013
Steamers and Dreamers	Hawkes Bay Model Engineering Society (Inc)	May 2013
The Generator	Manukau Live Steamers (Inc)	May 2013
The Micrometer	Palmerston North Model Engineering Club (Inc)	May 2013
	Auckland Society of Model Engineers (Inc)	May 2013

THESE MAGAZINES ARE AVAILABLE TO READ IN THE CLUBROOMS FOR APPROXIMATELY 1 MONTH





# Wednesday Workdays

By the Editor



**1/5/13:** No one on site today except yours truly who continued to paint the No1 Bridge facing SH14. The rest were at the late Wally Webb's workshop helping his family clear the place out. Some of the items will be for sale through this magazine.

**15/5/13:** Good attendance. The weed-spray train was given a workout and the whole of the track was given a dose of weedkiller. The body of one of the new trolleys was re-attached to the chassis. This trolley has been sponsored by Dominator Roller Doors. The body was removed so that the signwriting could be done off site.

**22/5/13:** The weatherman forecast all sorts of dire weather for today and he was mostly right. Tony and Rodney were busy making a very strong locker-type structure fit into the alcove under the balcony at the door-end of the clubrooms. This will hold the acid bath for pickling new boilers to get rid of the crud that is left after joining everything up. Meanwhile Rankin had purchased a new cupboard and was busy assembling it and is donkey-deep in sorting all the books that have come from the late Wally Webb's collection. Ian was going to try and finish the painting of the No 1 Bridge but that was not to be.

**29/5/13:** After yesterday which was like living in a refrigerator I really was not looking forward to today. But lo and behold the day dawned with brilliant sunshine. So on with the long-johns and an extra jersey I headed for the track. I was beaten by at least five others. Rankin and Dave G were busy cutting out and fitting the new seat covers for some of the older ride wagons. At the end of the day there were only two to go. Rodney and Tony were working on the finishing touches to the pickling shed by installing an overhead rail on which to suspend a small chain block to lift the items to be "pickled". Neville engaged himself cataloguing all the books that have arrived from Wally's place. (That'll keep him busy). And yours truly made a "bloody nuisance" of himself except for a little time spent doing some ballasting of part on the main line. I was going to finish painting the No 1 Bridge but it was too cold on that side of the hill. Maybe I'll tackle that next week.

## Have You Been to the Gold Coast Lately?

If you haven't then you might not know that the Gold Coast is investing mega-bucks (\$1.2b) in light rail transport (trams), right along the main drag between roughly Coolangatta in the South and Southport in the North.

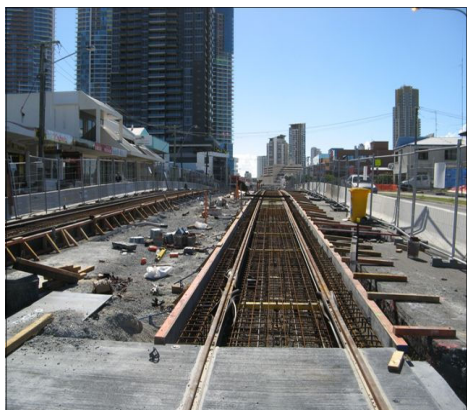


Stage one consisting of approximately 13km, from the Gold Coast University Hospital to Broadbeach, will open toward the middle of next year. The line will have 16 stations and the first tram (14 total) for the system, built by Canadian company Bombardier in Germany, is apparently already on its way to Brisbane.

The Flexity 2 vehicle is 43m long, 2.6m wide and 3.6m high and has 7 articulated sections. The luggage racks are designed for surfboards.

Below are some pictures of the construction work in progress. Some of this work is quite involved, included is a completely new bridge over the Nerang River.

Construction started in 2010 and involved major shifting and re-alignment of underground services and a myriad of other things. A lot of the major work was undertaken at night. ■





# General Pics from Around the Site



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2



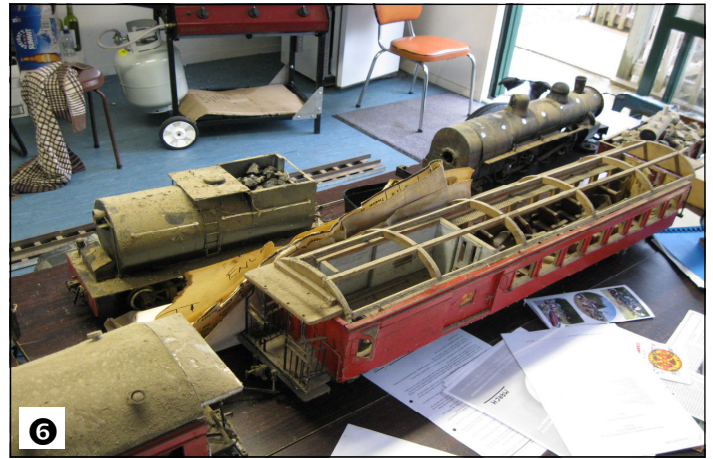
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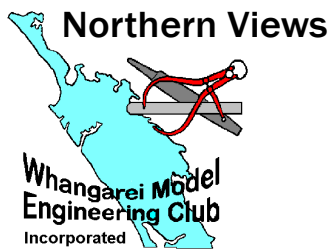
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7

## PHOTOS ABOVE:

1. Some of the books from the late Wally Webb's collection. A new cupboard in the clubrooms will be their future home.
2. A citric acid bath out of two HD "plastic" barrels
3. The partly-made gantry for lifting items into the acid bath.
4. The acid bath will live in a lockable 16g steel cabinet located in the alcove just outside the roller doors.
5. Santa Fe having a rest in the sun after servicing.
- 6-7. Part of the collection Wally Webb had in his workshop. Although not live steam the models must have taken a fair amount of time to make. Some spit and polish is required.



IF UNDELIVERED PLEASE RETURN TO:—

Whangarei Model Engineering Club Inc,  
P.O. Box 10233, Te Mai, Whangarei 0143.